Winter 2008

DroughtScape- Winter 2008

Kelly Smith

National Drought Mitigation Center

DroughtScape

The Newsletter of the National Drought Mitigation Center

Winter 2008

Now Up & On-Line:

- U.S. Drought Monitor shapefiles and GIS Data back through 2001
- Drought Monitor Forum presentations
- Bismarck, ND presentations

Read more on page 12.

NDMC Experts Serve as Resource for Media

The intense drought in the Southeast in 2007 resulted in more media calls than usual to the NDMC. We were pleased to be able to serve as a resource and hope that the spotlight will stay on drought long enough for the Southeast to make some headway in reducing its vulnerability.

Drought also spurred innovation by on-line editions of news organizations. The *News & Observer* in Raleigh, N.C., has produced an innovative, animated infographic using the Drought Monitor.

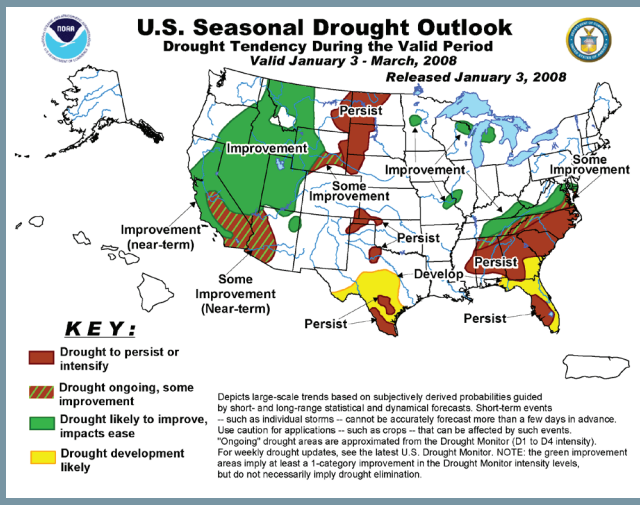
Read more on page 12.

About DroughtScape

DroughtScape is the quarterly newsletter of the National Drought Mitigation Center (NDMC). The NDMC's mission is to reduce vulnerability to drought, nationally and internationally. Please email the editor with ideas: droughtscape@unl.edu

Winter 2008 Outlook and Oct.-Dec. '07 Summary

With La Niña here and forecast to stay through the end of winter, drought is likely to intensify in Florida and the Gulf Coast, and to ease in the Mid-Atlantic states. In the Southeast, the current pocket of severe and exceptional drought will continue. Read more on page 2.



Drought Hits Ag and Urban Interests in 2007

Poor crop yields and high hay prices affected ag producers in the Southeast, while water shortages threatened urban areas. Read more on page 6.

Climatological Summary of Drought in 2007

Drought shifted radically in 2007, away from the High Plains and Texas and into the Southeast. Read more on page 4.

NDMC Welcomes Data Miner Bo Zhang

The NDMC is pleased to welcome Bo Zhang, data miner and statistician, to the staff. Read more on page 11.

New Grant Awards

- Two NASA grants will help researchers enhance the Drought Monitor.
- A TRACS grant from NOAA will help the Drought Impact Reporter move into its next stage.
- A contract with the Bureau of Indian Affairs will increase the NDMC's work with Indian tribes.

Read more on page 10.

DROUGHTSCAPE
The Newsletter of the National Drought Mitigation Center

Winter 2008

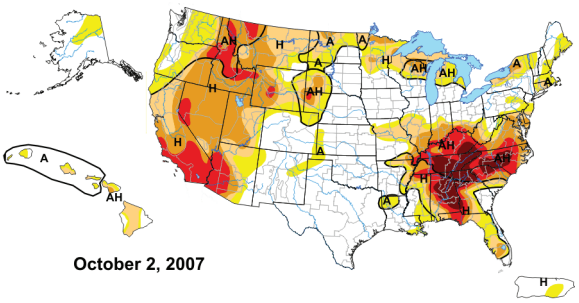
Winter 2008 Drought Outlook and October to December 2007 Summary

By Brian Fuchs, Climatologist, National Drought Mitigation Center

Drought classifications are based on the U.S. Drought Monitor. For a detailed explanation, please visit http://drought.unl.edu/dm/classify.htm*. The outlook integrates existing conditions with forecasts from the National Oceanic and Atmospheric Administration's Climate Prediction Center (CPC):* http://www.cpc.ncep.noaa.gov/

The CPC's Seasonal Drought Outlook is updated twice a month at
http://www.cpc.noaa.gov/products/expert_assessment/seasonal_drought.html

Outlook: With La Niña here and forecast to stay through the end of winter, drought is likely to intensify in some areas, such as Florida and the Gulf Coast, and to ease up in other areas, such as the Mid-Atlantic states. In the Southeast, the current pocket of severe and exceptional drought will continue. This dryness, part of the La Niña pattern, should expand south into Florida and west along the Gulf Coast. The northern edge of the drought in the Southeast is expected to recede in the Mid-Atlantic region, but how far south this improvement spreads is yet to be determined. The current dryness in the southern Plains and New Mexico will intensify over the next several months, and drought in the northern Plains will persist through the winter. Vast improvements will continue over the central and northern Rocky Mountains, and drought will ease up in southern California and Arizona. Through the winter, temperatures over the southern tier of the United States will be well above normal, and temperatures over the northern portions of the country will be cooler than normal. Precipitation should be below normal through the Plains, Southwest, and Gulf Coast, and above normal through the Pacific Northwest and Midwestern states.


October 2, 2007

October: During October, drought loosened its grip across the United States. At the beginning of October, 59.3 percent of the United States was experiencing abnormally dry or drought conditions, compared to 50.1 percent at the end of the month. Improvements came to the Southeast, Mid-Atlantic, northern Plains and Pacific Northwest. Above-normal precipitation was recorded over much of the upper Midwest, Ohio River Valley, Pacific Northwest, and Gulf Coast, where some stations recorded over 300 percent of normal precipitation for the month. Temperatures were above normal for most of the United States in October except for the West. Temperatures were as much as 8 to 10 degrees Fahrenheit above normal over much of New England and Great Lakes regions.

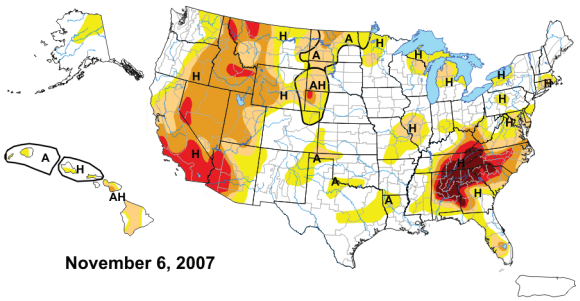
November: Drought expanded and intensified in November due to widespread dryness. Abnormally dry and drought status increased from 50.1 percent to 56.2 percent during the month. Much of this increase was in the D1 category, with several new areas of D1 introduced in November. Intensification of drought in the Southeast was widespread, especially through the Carolinas. Areas of the Texas panhandle, New Mexico and Oklahoma continued to show short-term dryness,

DroughtScape
The Newsletter of the National Drought Mitigation Center

Winter 2008

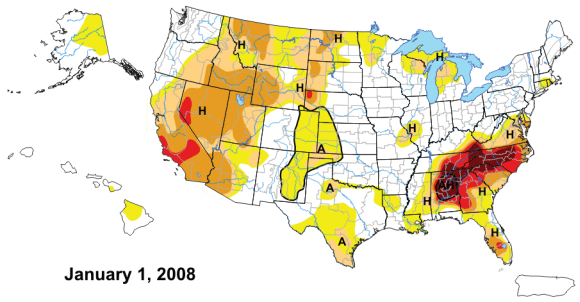
October to December 2007 Summary, continued

resulting in expansion and intensification of drought. Much of the Plains received less than 10 percent of normal precipitation. Most locations in the West and Southeast received 25 percent or less of their normal precipitation for the month. New England and small pockets of the Southwest received above-normal precipitation. As in October, much of the United States observed temperatures that were 2 to 4 degrees Fahrenheit above normal for the month. The exception to this was along the east coast and in the Pacific Northwest.



November 6, 2007

December: December was a wet month for much of the Southwest, Great Plains, and upper Midwest. Above normal precipitation in these regions reduced drought. Good rains through portions of the Southeast at the end of December also brought welcome relief from the ongoing drought, extending into the Mid-Atlantic. With some locations in Georgia and the Carolinas recording up to 5 inches of rain, a categorical improvement to the drought status was made for much of the region. The recent rains helped short-term conditions, but with precipitation deficits of 20-plus inches common throughout the Southeast for the year, the long-term drought is far from over. In the Southwest, above normal precipitation and snow reduced drought from southern California northeast through the four corners and into Colorado. D3 was eliminated from all of Arizona and southern California and D0/D1 and D2 conditions were improved in Utah, Arizona, New Mexico, Colorado and into the Texas panhandle. December ended with 54.6 percent of the United States experiencing abnormally dry or drought conditions compared to 56.2 percent at the beginning of December and 50.0 percent a year ago. Montana and North Dakota as well as central and south Texas continued to be dry in December. Long-term hydrological problems are persisting in central Florida. Extreme drought around Lake Okeechobee led to continuing water supply problems in the region.



January 1, 2008

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DROUGHTSCAPE
The Newsletter of the National Drought Mitigation Center

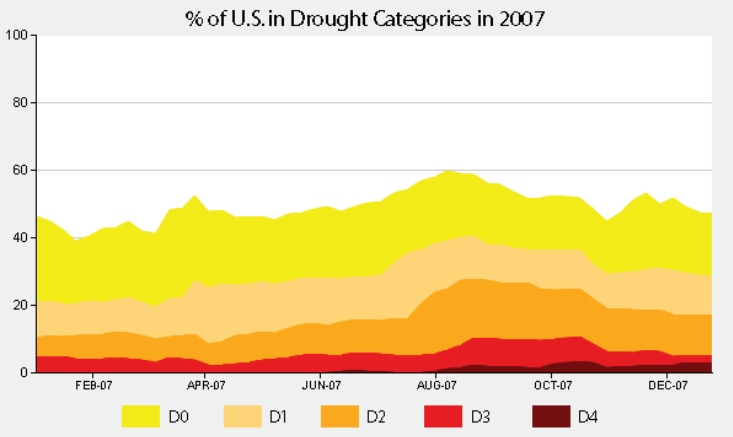
Winter 2008

2007 Drought in Review

By Brian Fuchs, Climatologist, National Drought Mitigation Center

Drought of unprecedented intensity enveloped the Southeastern United States in 2007, while record-breaking rains ended drought's grip on Texas. California got worse, while conditions improved in the High Plains and other parts of the West. Roughly the same proportion of the contiguous U.S. was abnormally dry or in drought at the beginning and end of 2007 – 50 percent in January, compared with 54.6 percent in December – but there were huge changes in the affected areas.

In January, upper Minnesota, the High Plains, the Southern Plains and Arizona had patches of extreme (D3) drought, with exceptional drought (D4) in an area of southwest Texas. At the start of the year, 5.9 percent of the country was in extreme or exceptional drought, compared with 5.8 percent at the end of the year. But at the end, the main areas affected were states in the Southeast and Mid-Atlantic, California, Nevada and Nebraska. The amount of exceptional drought increased significantly from just 0.3 percent of the United States in January to 2.4 percent in December.



The shift in drought areas is highlighted by the fact that the D3 and D4 regions in January were almost completely relieved of drought by the end of 2007. Minnesota had 40.9 percent of the state in D3 last January, with 96 percent of the state abnormally dry or worse. In December, just 39 percent of the state was abnormally dry (D0), with only 3.8 percent in moderate drought (D1). There was no severe (D2) or extreme status in the state. Texas was another state that recovered nicely from the drought of 2006-07, with record rainfall throughout the state. Texas had its wettest January to August period on record, with Dallas-Ft. Worth measuring 16.52 inches of rain in June and July. It was the wettest there since 1973, with 28 of the 61 days receiving measurable precipitation. In January, 75.9 percent of Texas was abnormally dry or in drought, compared to 48 percent in December. In January, 37.7 percent of Texas had D2-D4 drought conditions. No part of the state showed D2 or worse in December. Outside of a dry fall and early winter, Texas had one of its wettest years on record.

The High Plains saw a reduction in drought in 2007, though parts of the region were still in drought for the eighth consecutive year. In January, 73.1 percent of the High Plains was abnormally dry or in drought, compared to 53.2 percent in December. Areas of D3 drought shrunk from 14.3 percent of the region to just 0.3 percent during the year, with the last remaining pocket of D3 in western Nebraska. With the longevity of drought in this region, many long-term effects such as low reservoir levels will not improve without significant precipitation.

National Drought Mitigation Center

DROUGHTSCAPE
The Newsletter of the National Drought Mitigation Center

Winter 2008

2007 Drought in Review, continued

The 2006-2007 water year (October 1-September 30) was very dry in the western United States, with record low snowpack in many locations. California, coming off a very wet and bountiful 2005-2006 water year, experienced one of the driest years on record with the state having its driest November-April. Los Angeles ended up with the driest "rainy season" (July 1 to June 30) on record with just 3.21 inches of rain. This tally was the lowest since record keeping began in 1877. In January, 59.3 percent of California was abnormally dry or in drought, compared to 91.1 percent in December. California ended 2007 with 58 percent of the state in D2 or D3 drought, compared to none in January.

Heat was also a major factor in the expansion of drought in the West during 2007. Many locations set all-time record temperatures beginning in July. Boise, Idaho, set a record for the highest average monthly temperature at 83.1 degrees Fahrenheit in July, which was also its warmest month ever. Utah had its warmest August on record, while Reno, Nevada had its hottest August following a July that was the hottest of any month ever in Reno. The heat and dryness sparked numerous fires throughout the West during the summer months, and by late July, active fires were burning in northern Nevada, eastern Oregon, eastern Washington, Idaho, western Montana, and Utah. The largest fire ever in Utah burned 363,000 acres in the south-central part of the state, which started on July 6 and was not contained until the 16th.

The southeastern United States became the drought epicenter in 2007. January saw the Southeast with 47.8 percent of the region in D0-D2 status, with the majority of that just abnormally dry. At the end of December, 90.4 percent of the region was abnormally dry or in drought status with a high proportion in extreme and exceptional drought -- 19 percent was in D3 and 22 percent in D4. Many locations had record low precipitation for the year and annual deficits of 20 or more inches were common. Significant rains the last week of December brought welcome relief. Along with the dryness, heat was also a problem, with several months of above normal temperatures and extended heat waves. Long-term improvement in the region is not expected while La Niña is in place. It is expected to last through the first half of 2008.

Thanks to Doug Lecomte, Climate Prediction Center, who generated some of the statistical information used in this report.

2007 Records in the Southeast

- Alabama, Tennessee and Mississippi each recorded their driest February-April in 113 years of record keeping.
- Georgia's largest wildfire in the last 50 years burned nearly 90,000 acres in and around the Okefenokee Swamp.
- Alabama, Tennessee, North Carolina, and Florida all recorded their driest January-August in the last 100 years, with Georgia and Mississippi having the 2nd driest.
- August was the 2nd warmest for the United States in the 113 years of records.
- Montgomery, Alabama, had 12 consecutive days (August 6 to 17) above 100 degrees Fahrenheit, breaking the previous record by 5 days.
- West Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Alabama, Georgia, and Florida each measured their warmest August on record.

DroughtScape
The Newsletter of the National Drought Mitigation Center

Winter 2008

Economic Impacts of the 2007 Drought

By Ya Ding, Agricultural Economist, and Kelly Helm Smith, Science Communicator, with contributions from Brian Fuchs, Climatologist, National Drought Mitigation Center

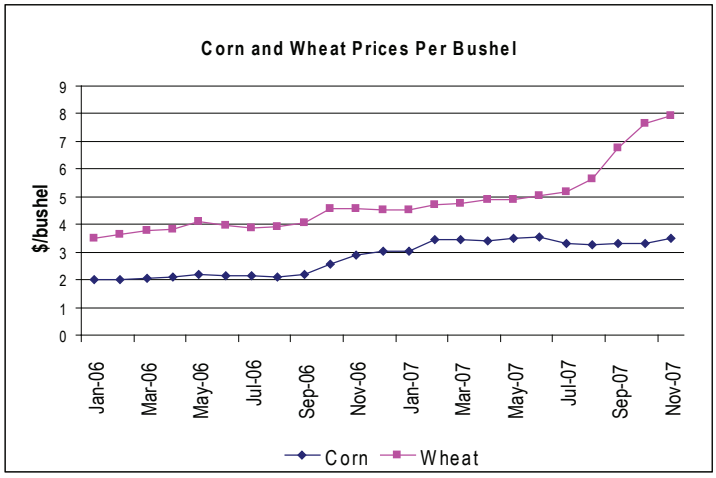
A multi-year drought receded in the Midwest in 2007, but the Southeast endured a second very intense year of drought, and drought hit Southern California hard, contributing to widespread wildfires as well as agricultural losses.

A dry spell that started in the Southeast 18 to 24 months ago turned into a scorching drought during the spring and summer growing season. As of mid-December, many locations were on track to set all-time records for least precipitation recorded in a year. Heat was also an important factor in the drought. Many weather stations will record 2007 as one of the 10 hottest years on record. As of year-end, large areas of Alabama, Georgia and Tennessee were rated D4 (exceptional drought) on the U.S. Drought Monitor map, indicating the highest level of drought severity, and the Carolinas were almost completely in D3 (severe drought) or D4. The impacts of the drought were devastating, not only damaging agricultural production, but also depressing local businesses and industries such as landscaping, recreation and tourism, and public utilities. Residential water use has been restricted as well. Many drought-stricken areas have imposed voluntary and mandatory bans on outdoor water use and requested voluntary indoor water conservation. With the La Niña in full force and not expected to go away until late spring or early summer, the conditions in the Southeast are not expected to improve during the winter months, and could actually worsen in many locations, such as Florida and Georgia.

One of the challenges in reporting drought's economic impacts is that economic data tend to be aggregated into state and national summaries that don't reflect the extreme hardship faced by individual agricultural producers. Drought is one of many factors that influence prices on the global commodity market.

Grain Production

The good news is that farmers in major grain-producing states are expecting the highest cash receipts ever from their 2007 crops, given record-high grain prices and near-record production. The boom of corn-based ethanol production has boosted the price of corn since 2006. Additionally, Australian drought in 2006 led to a shortage of wheat in the international market, which drove grain prices up further. Figure 1 plots the monthly prices of corn and wheat in the United States. The national average price of corn was up 20 percent and wheat, 70 percent, from the preceding year, as of November.



DROUGHTSCAPE
The Newsletter of the National Drought Mitigation Center
Winter 2008

Economic Impacts of the 2007 Drought, continued

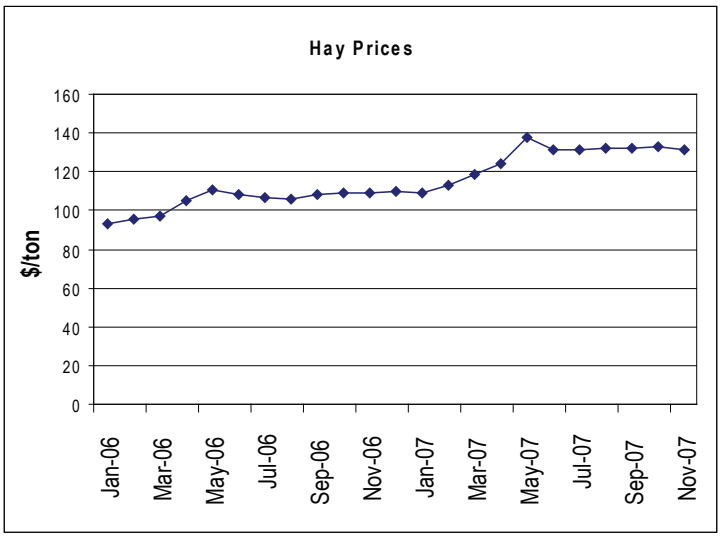
In the drought-stricken Southeast states, grain prices rose even higher. The November corn price was higher than the national average by 11 percent in North Carolina and by 10 percent in Tennessee. Although higher prices helped offset part of the yield loss, many local farmers still faced significant economic losses. The average corn yield was down from last year by 32 percent in North Carolina and by 15 percent in Tennessee. Drought also caused damages to other field crops such as soybeans, cotton, and hay. Comparing preliminary data for 2007 with historic averages, the National Drought Mitigation Center estimates that losses to major field crops, including corn, wheat, soybeans, cotton, and hay, totaled more than $1.3 billion for the Southeast. The region included in the estimate covers Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia and West Virginia. These data are from the National Agricultural Statistics Service (NASS) of the U.S. Department of Agriculture.

Citrus Production

Citrus crops have also been affected by the drought. Florida and California are the nation's top two citrus states, accounting respectively for 70 percent and 25 percent of the 10.3-million-ton U.S. citrus production in 2007, according to NASS reports. California's deep freeze early this year and the ongoing drought in southern California and Florida reduced the 2006-2007 citrus crop yield by 13 percent, compared with the previous season. Florida's orange production was down 13 percent and California's was down 26 percent from the last season. Accordingly, the price of fresh oranges was up 40 percent in California and 90 percent in Florida. Higher prices helped offset yield losses. The value of the national crop came to $2.95 billion, up 8 percent from the previous season.

Livestock Production

The cattle industry was stressed during the drought because of the shortage of feed. To take advantage of high crop prices, farmers have planted more acres in corn and wheat, but less in hay and other feed crops, which led to a hay shortage. Making matters worse, the heat and dry spell in drought-affected areas withered pastures and rangelands, causing poor grass growth. According to a USDA crop progress report on October 28, 93 percent of pastures in California were rated in poor to very poor condition, as were 57 percent in Georgia, 86 percent in North Carolina and 63 percent in Kentucky. Nationwide, 32 percent of pastures were rated in poor to very poor condition.



Economic Impacts of the 2007 Drought, continued

Poor pasture conditions forced producers to pay high prices for supplement feed. The increasing demand intensified the hay shortage, leading to soaring hay prices. Figure 2 plots the monthly hay prices from January 2006 to November 2007. The November U.S. average hay price was up over 20 percent from the previous year.

Farmers who could not afford expensive feed were forced to sell off part of their herd. Losses were incurred as cattle were put onto the market before they reached the most profitable weight. Meanwhile, a large number of cattle liquidated onto the market also reduced the cattle price in drought areas. Cheap cattle prices benefited cattle buyers outside the drought areas. In June and July, northern Alabama had the dubious distinction of being the epicenter of drought in the Southeast. *Southeast Farm Press* reported July 4, "Many in Alabama have begun selling off cattle for fear they won't have enough hay or grain to feed them through the summer and through next winter. State livestock auctions are seeing a more-than-60-percent increase in the number of cows or calves sold at auctions. In the exceptional drought area, increases are more than 100 percent. With ponds and streams drying up, some farmers have had to buy water for their cattle to drink, and a cow can drink about 30 gallons a day."

Cattle producers in the Southeast now face challenges finding enough feed for their herds for the winter, according to Curt Lacy, a livestock economist with the University of Georgia College of Agricultural and Environmental Sciences. "It's a very precarious situation right now," he said in an October 11 press release. "I don't see how we will not have to liquidate cows due to the lack of hay supplies we have in the state going into this winter." He estimated the 2007 hay harvest would be 600,000 to 1 million tons of hay, compared with the 2 million tons that is possible in a good year, and that cattle producers would end up reducing beef cow herds by 5 to 10 percent.

Nursery Crops and Landscape Services

Nursery and landscape businesses were facing big losses from drought. Nursery crops are normally one of the largest agricultural commodities by gross value of sales in California and many Southeast states. Out of the national gross sales of $4.65 billion in 2006, California and Southeast states made up over 60 percent. In 2007, drought prevented the growth of new plants and damaged perennials. Given this year's drought conditions in California and the Southeast, we anticipate significant reductions of output and sales of nursery crops, although the USDA has not yet released 2007 figures for this industry. Landscaping businesses had a harsh year. Plant sales were down, plant mortality increased, and watering costs increased. Many businesses were forced to close locations, lay off employees, and even file for bankruptcy. The Georgia-based retailer, Pike Nursery, filed for bankruptcy protection due to drought. As the drought is still going on, the effects may not yet be over. Municipal restrictions on outdoor watering also play a significant role in this industry.

Recreation and Tourism

Lakeside recreational businesses were badly hit by the drought, with reservoir levels greatly reduced. Recreation was forced to take a back seat to other competing needs such as irrigation, hydropower generation, residential water use, and environmental water needs. During the drought, many boat docks and lake beaches were forced to close, leading to big losses for lake-

Economic Impacts of the 2007 Drought, continued

side business owners and local communities. Although there are many examples of businesses that have suffered due to drought, dollar figures for drought-related losses to the recreation and tourism industry are not readily available. The federal government is currently providing low-interest (4 percent) loans to small businesses through the U.S. Small Business Administration, which might help some recreational businesses recover.

Public Utilities

The exceptional drought in the Southeast affected hydropower generation. Dropping lake levels forced power companies such as the Tennessee Valley Authority (TVA), Duke Energy and others to reduce electricity generation from cheap hydropower, to substitute electricity generated from more expensive fossil fuels, and to pass costs along to consumers. A November 29 TVA press release reported that TVA's hydropower generation was 24 percent below normal for fiscal year 2006, 31 percent below normal in FY 2007, and 66 percent below normal for the fiscal year that began October 1. The TVA attributed the decrease to 33 percent below-normal runoff reaching reservoirs in 2007 and 46 percent below-normal runoff in 2007. An August 27 Duke Energy press release said hydroelectric power generation was down 45 percent for April-June of 2007 compared with the previous seven years.

Residential Water Use

The water shortage in the Southeast was so serious at the end of the year that some cities including metro Atlanta were in danger of running out of water within a few months. Private and municipal wells have gone dry and many locations are continuing to watch municipal water supplies dwindle. This water emergency has triggered the highest level of water restrictions specified by plans in many drought-stricken areas, limiting both commercial and home water use. Drought's effects were no longer limited to the agriculture sector or rural areas, but instead, were felt by normally well-protected urban residents in their daily lives. Urban and rural areas were pitted against one another, and municipalities and states pointed fingers at one another and at the U.S. Army Corps of Engineers, accusing each another of not doing enough to conserve, and of having misplaced priorities. Accordingly, the media coverage of drought reached a peak of intensity. The *Valdosta* (GA) *Daily Times* said in a widely circulated editorial: "[Atlanta] politicians can't bring themselves to tell their greedy constituents complaining about the low flows in their toilets this week that perhaps if they didn't have six bathrooms, it might ease the situation a bit. That watering your lawn isn't as important as watering crops. Or that their greedy overbuilding has taxed their supplies of natural resources beyond their capabilities."

Conclusion

In 2007, drought's impacts went well beyond agriculture, even in the Southeast, which people normally think has plenty of water. The intense drought in a densely populated part of the country can and should bring about permanent changes in the way we handle drought. It raised questions about the long-term sustainability of current development patterns. The need to address the likelihood of water shortages in the future through policy, legislation and drought planning is currently difficult to avoid. We hope that decision-makers at all levels will keep these questions in the forefront until they have been addressed.

DROUGHTSCAPE
The Newsletter of the National Drought Mitigation Center

Winter 2008

New Grant Awards

NDMC and Partners Receive NASA Grants

The National Drought Mitigation Center learned in December that two research proposals submitted to the National Aeronautics and Space Administration (NASA) have been approved:

"Developing Seasonal Predictive Capability for Drought Mitigation Decision Support System" will help add a forecast component to the U.S. Drought Monitor. Researchers will incorporate climate modeling and satellite observations to see whether they can provide more useful information to decision-makers. They'll be working with end-users of the Drought Monitor Decision Support System (DMDSS) to assess whether the additional forecast information improves decisions. The end-users are two agricultural producer organizations, The Irrigation Association and The Corn Growers Association, and two local agencies, the Central Illinois Irrigated Growers Association and the Nebraska Department of Natural Resources. The project is expected to take three years to complete. NDMC researchers will be partnering with others from the Department of Civil and Environmental Engineering and the Illinois Water Survey at the University of Illinois at Champaign-Urbana. NDMC researchers on the project are Jae Ryu, Mark Svoboda, Cody Knutson, Meghan Sittler, and Don Wilhite.

"Integrating Enhanced GRACE Water Storage Data into the U.S. and North American Drought Monitors" will focus on incorporating NASA's GRACE satellite data enhanced by hydrologic modeling into the U.S. and North American Drought Monitors. Ideally, the additional data will be incorporated into the "objective blends," the strictly numeric drought map summaries produced weekly for the U.S. Drought Monitor. Researchers will be able to measure the difference in objective blends with and without the additional data, and will incorporate stakeholder feedback in gauging the effectiveness of the changes. The project is expected to take three years to complete. NDMC researchers will be working with others from NASA's Goddard Space Flight Center, the National Oceanic and Atmospheric Administration's National Climatic Data Center, and the National Center for Atmospheric Research. NDMC researchers on the project are Mark Svoboda and Brian Wardlow.

NDMC to Work with Tribal Governments Under New Contract

The National Drought Mitigation Center will work with the Bureau of Indian Affairs to help tribes plan for drought, according to a contract finalized in early November. Officials anticipate that the one-year contract will be extended for three years. The NDMC has been working with tribal governments on drought planning directly and indirectly for the past 10 years. Faculty and staff have developed expertise and understanding of tribal drought planning issues.

NOAA TRACS Grant to Advance Drought Impact Reporter

We received word that the NDMC's Drought Impact Reporter will be enhanced by a Transition of Research Applications to Climate Services (TRACS) grant from the National Oceanic and Atmospheric Administration. The three-year award will help make the tool more robust for policymakers and agricultural producers. NDMC researchers anticipate working with others to incorporate data from local drought impacts assessment groups into the system, and adding information from other networks of drought observers.

National Drought Mitigation Center

DROUGHTSCAPE
The Newsletter of the National Drought Mitigation Center

Winter 2008

NDMC Welcomes Data Miner Zhang

The National Drought Mitigation Center was pleased to welcome Bo Zhang to the staff in October. He is working on developing and investigating new data mining algorithms that can be integrated into new drought monitoring tools and approaches. He will also be designing and implementing an SQL database system to more effectively manage and analyze the large volumes of climate, oceanic, and satellite data used in various NDMC projects. This will allow the NDMC to better utilize a vast array of information for a wide range of drought monitoring, planning, and mitigation activities.

Zhang attended the 2007 Summer Assembly of the University Consortium for Geographic Information Science at Yellowstone National Park in Wyoming. He was one of a handful of students selected to present papers and receive awards.

Bo expects to complete a PhD in Environmental Science from Ohio State University in March 2008. His topic is "Statistics, GIS and Remote Sensing in Exploration of Changes of Prairie Potholes by Climatic Variability." He has previously earned a Master of Applied Statistics in December 2006 from Ohio State University in Columbus, Ohio; a Master of Science in June 2002 from the Institute of Nuclear Energy, Tsinghua University, Beijing; and a Bachelor of Science in Environmental Engineering in June 2000 from Tsinghua University.

Dr. Brian Wardlow, who will be working closely with Zhang, said, "Bo will be a valuable addition to the NDMC. His experience in areas of applied statistics, remote sensing, GIS, application development for environmental analysis, and data base design and implementation complements the existing skill sets of other NDMC faculty and staff. We will be able to continue to expand the Center's scope to better understand the drought phenomenon and its impacts on the environment and society using new geospatial and geostatistical analysis techniques. The goal is to provide the public with more effective drought monitoring tools and decision support systems that can be used to improve drought planning, preparedness, and mitigation activities."

Specifically, Bo's technical expertise will aid the NDMC's exploration of complex ocean-climate-vegetation interactions and help it develop more effective drought monitoring and prediction tools.

DROUGHTSCAPE
The Newsletter of the National Drought Mitigation Center

Winter 2008

Now On-Line, for Your Convenience:

U.S. Drought Monitor Shapefiles Archived

Shapefiles for the U.S. Drought Monitor (USDM) back through 2001 are now archived on the USDM web site as "GIS Data" at http://drought.unl.edu/dm/dmshps_archive.htm. In addition to actual shapefiles, which was originally a proprietary file format developed by the Environmental Systems Research Institute, the archive provides KML files, the Google Earth format; GML files, using Geographic Markup Language, which works on a variety of GIS platforms; and OGC Web Mapping Services, which provide georeferenced map images to a variety of clients. If you have questions about USDM GIS Data, please contact Soren Scott, NDMC GIS Specialist, via email to sscott5 (at) unl.edu, or by calling 402-472-6717.

U.S. Drought Monitor Forum Presentations

Drought Monitor authors, contributors, stakeholders and policymakers heard updates on data and policy at the U.S. Drought Monitor Forum Oct. 10-11 in Portland, Ore. Speakers' presentations are available: http://drought.unl.edu/news/dmforum-OR2007.html.

Couldn't Make Bismarck? Presentations Available

http://drought.unl.edu/news/listensession-ND2007.html

User feedback, collected via listening sessions, email, conversations, and any other means feasible, are an integral part of fine tuning our drought monitoring tools to be accurate and as useful as possible. These tools are being developed with sponsorship from the U.S. Department of Agriculture's Risk Management Agency, in partnership with the Computer Science & Engineering Department of the University of Nebraska-Lincoln.

If you're interested in helping us fine-tune or ground truth products to make them as accurate and useful as possible, you can contact Meghan Sittler, NDMC Research & Outreach Specialist 402-472-2712, msittler2 (at) unl.edu and let us know more about your interest.

Southeast Drought Brings Media to NDMC

The Raleigh, N.C., *News & Observer* has created an innovative, animated map using the U.S. Drought Monitor to link drought and declining reservoir levels. Go see:
http://www.newsobserver.com/1181/story/745683.html

NDMC drought-trackers fielded more media calls than usual due to intense drought in the Southeast. Our climatologists' comments have been incorporated into broadcasts on "Talk of the Nation," "Morning Edition," "The Diane Rehm Show," "The Lou Dobbs Show," and the "NBC Nightly News," and into articles in *The New York Times*, *The Atlanta Journal-Constitution*, *USA Today*, *The Washington Post*, *The Sacramento Bee*, and *The Miami Herald*, among others.